

## **Statement of Basis**

**Permit to Construct No. P-2009.0102  
Project ID 61780**

**EM Tanner & Sons, Inc.  
Blackfoot, Idaho**

**Facility ID 011-00036**

**Final**

**January 17, 2017  
Tom Burnham   
Permit Writer**

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01. et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

<b>ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE .....</b>	<b>3</b>
<b>FACILITY INFORMATION .....</b>	<b>4</b>
Description .....	4
Permitting History .....	4
Application Scope .....	4
<b>TECHNICAL ANALYSIS .....</b>	<b>5</b>
Emissions Units and Control Equipment .....	5
Ambient Air Quality Impact Analyses .....	9
<b>REGULATORY ANALYSIS.....</b>	<b>10</b>
Attainment Designation (40 CFR 81.313).....	10
Facility Classification.....	10
Permit to Construct (IDAPA 58.01.01.201).....	11
Tier II Operating Permit (IDAPA 58.01.01.401) .....	11
Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70).....	11
PSD Classification (40 CFR 52.21).....	11
NSPS Applicability (40 CFR 60) .....	11
NESHAP Applicability (40 CFR 61) .....	11
MACT Applicability (40 CFR 63) .....	12
Permit Conditions Review.....	13
<b>PUBLIC REVIEW.....</b>	<b>13</b>
Public Comment Opportunity.....	13
<b>APPENDIX A – EMISSIONS INVENTORIES.....</b>	<b>14</b>
<b>APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES.....</b>	<b>15</b>
<b>APPENDIX C – FACILITY DRAFT COMMENTS.....</b>	<b>16</b>
<b>APPENDIX D – PROCESSING FEE .....</b>	<b>18</b>

## ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations for non-carcinogens
AACC	acceptable ambient concentrations for carcinogens
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
CAA	Clean Air Act
CFR	Code of Federal Regulations
DEQ	Department of Environmental Quality
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
HAP	hazardous air pollutants
HC	Hydrocarbons
hr/yr	hours per year
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometers
lb/gal	pounds per gallon
lb/hr	pounds per hour
m	meters
MACT	Maximum Achievable Control Technology
MSDS	Material Safety Data Sheets
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industry Classification System
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NSPS	New Source Performance Standards
PC	permit condition
PM	particulate matter
PM <sub>10</sub>	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
Rules	Rules for the Control of Air Pollution in Idaho
scf	standard cubic feet
SIC	Standard Industrial Classification
SM	Synthetic Minor
T/yr	tons per year
T2	Tier II operating permit
T2/PTC	Tier II operating permit and permit to construct
TAP	toxic air pollutant
TDI	Toluene-2,4-diisocyanate
UTM	Universal Transverse Mercator
VOC	volatile organic compounds
µg/m <sup>3</sup>	micrograms per cubic meter

## **FACILITY INFORMATION**

### ***Description***

EM Tanner & Sons (Tanner) fabricates molds and paints a variety of pieces of potato processing equipment. Tanner applies a base coat and top coat paint to each part in the same spray booth. Equal amount of base coat and top coat are applied. The paint comes in five gallons pails. Generally, thinning of the paint is not done at the facility. However, on occasion and depending on the temperature and/or atmospheric pressure, a small amount of solvent is added to the paint. The paint is dispersed by a spray gun which has a maximum capacity of 3.34 gallons/ hour. Currently, painting the parts is performed at a maximum of 5 hours/day, year around, resulting in a maximum total of 1,825 hours/year. Tanner uses three paint colors - black, white, and burnt orange enamel. Only one type of paint is used at a time and only a small amount of solvent is added to the paint. However, to be conservative, the emissions used in the air dispersion model assume the material being sprayed contains the highest concentration of each constituent.

The paint booth has an exhaust fan of 24,000 acfm. Exhaust from the paint room and other areas of the shop (excluding the rubber room), travels in a zigzag pattern from the bottom inlet of the exhaust fan (located in the northwest corner of the paint room) to the top and passes through approximately 25 hanging expanded metal screens on the way up. Exhaust then travels through the fan itself to the outside plenum and down through a series of furnace filters. The exhaust fan exits the building at ground level. Combined with expanded metal screens, the estimated efficiency of the particulate removal is at least 95%.

On occasion, smaller parts are made using an open mold casting operation. The molds have a thin coat of mold release applied, and then a machine is used to mix the urethane resin and hardener and dispense the mixture into the mold. If the piece being molded has a metal core, the core will be painted with a layer of adhesive and placed in the mold prior to pouring. At the end of resin/hardener mixture pour cycle, the mixing/dispensing portion of the machine is flushed with methylene chloride.

The rubber room is equipped with an exhaust fan, rated for a maximum of 22,000 acfm. Currently the rubber room gets directed to a 25 foot stack.

Steel (primarily A36 grade) is purchased from regional steel vendors. The steel is sawed or sheared to length. The cut pieces are welded together into frames to which electric motors and drive components, belts, rollers, axles, and etc. are added to complete the machines. The fabricating is conducted in the manufacturing shop and the new shop attached to the manufacturing shop.

### ***Permitting History***

The following information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or superseded (S).

September 30, 2009      P-2009.0102, Initial PTC for an existing facility, Permit status A, but will become S upon issuance of this permit

### ***Application Scope***

This PTC is for a minor modification at an existing minor facility. The applicant has proposed to increase the amount of urethane used in the rubber room and install a new paint booth.

## Application Chronology

September 1, 2016	DEQ received an application and an application fee.
September 12 - 27, 2016	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
September 28, 2016	DEQ determined that the application was complete.
October 25, 2016	DEQ made available the draft permit and statement of basis for peer and regional office review.
December 21, 2016	DEQ made available the draft permit and statement of basis for applicant review.
January 11, 2017	DEQ received the permit processing fee.
January 17, 2017	DEQ issued the final permit and statement of basis.

## TECHNICAL ANALYSIS

### Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Emission Unit /ID No.	Emissions Unit Description	Control Device Description
Paint Room	<p><b>Exhaust Fan</b>                      Manufacturer: Dayton                      Model: 1AHB3                      Maximum Capacity: 24,000 acfm                      Construction Date: 1970                      Modification Date: 1985, 2016                      Maximum operating hours: 5,840/yr</p>	<p><b>Filter System</b>                      Manufacturer Screens: EM Tanner                      Manufacturer Filter: Air Handler                      Model Filter: 5W507                      Construction Date: 1985                      Modification Date: 2007                      Control Efficiency: 95%                      Dimensions Metals: 3/4" 16-gauge                      30 filters                      Dimensions: 24"x24"x2"                      4 filters</p>
Paint Spray Gun	<p>Manufacturer: Graco                      Type: Assisted airless                      Capacity Rating: 3.34 gal/hr                      Transfer Efficiency: 65%                      Maximum operating hours: 5,840/yr</p>	<p><b>Filter System</b>                      Manufacturer Screens: EM Tanner                      Manufacturer Filter: Air Handler                      Model Filter: 5W507                      Construction Date: 1985                      Modification Date: 2007                      Control Efficiency: 95%</p>
Rubber Room	<p><b>Exhaust Fan</b>                      Manufacturer: Dayton                      Model: 3CC75                      Maximum Capacity: 22,000 acfm                      Construction Date: 2016                      Maximum operating hours: 8,760/yr</p>	None
Welding Operations	<p>Method: Electric arc welding                      Process: GMAW (gas metal arc welding)                      Electrode Type: E70S</p>	None

## Emissions Inventories

### Potential to Emit

IDAPA 58.01.01 defines Potential to Emit as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is state or federally enforceable. Secondary emissions do not count in determining the potential to emit of a facility or stationary source.

Using this definition of Potential to Emit an emission inventory was developed for the paint room (painting), rubber room (molding), and fabrication(welding) operations at the facility (see Appendix A) associated with this proposed project. Emissions estimates of criteria pollutant and HAP PTE were based on emission factors from AP-42, operation of 8,760 hours per year, and process information specific to the facility for this proposed project.

### Uncontrolled Potential to Emit

Using the definition of Potential to Emit, uncontrolled Potential to Emit is then defined as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall **not** be treated as part of its design **since** the limitation or the effect it would have on emissions **is not** state or federally enforceable.

The uncontrolled Potential to Emit is used to determine if a facility is a “Synthetic Minor” source of emissions. Synthetic Minor sources are facilities that have an uncontrolled Potential to Emit for regulated air pollutants or HAP above the applicable Major Source threshold without permit limits.

The following table presents the uncontrolled Potential to Emit for regulated air pollutants as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations and the assumptions used to determine emissions for each emissions unit. For this painting, molding, and welding operation uncontrolled Potential to Emit is based upon a worst-case for operation of the facility of 8760 hr/yr using the coating/molding product with the highest pollutant concentration.

Table 2 UNCONTROLLED POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS <sup>(a)</sup>

Source	PM <sub>10</sub> /PM <sub>2.5</sub>	VOC
	T/yr	T/yr
Paint Room - Painting	5.72	15.76
Rubber Room - Molding	0.01	1.34
Fabrication Operations - Welding	0.1	0.00
<b>Total, Point Sources</b>	<b>5.83</b>	<b>17.10</b>

(a) There are no combustion sources or other sources of other criteria pollutants

The following table presents the uncontrolled Potential to Emit for HAP pollutants as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations and the assumptions used to determine emissions for each emissions unit. For this painting, molding, and welding operation uncontrolled Potential to Emit is based upon a worst-case for operation of the facility of 8760 hr/yr. Then, the worst-case maximum HAP Potential to Emit was determined as presented in Table 3:

Table 3 UNCONTROLLED POTENTIAL TO EMIT FOR HAZARDOUS AIR POLLUTANTS

HAP Pollutants	PTE (T/yr)
Xylene	0.34
Ethyl Benzene	0.11
Cumene	0.09
Chromium	1.92E-05

HAP Pollutants	PTE (T/yr)
Cobalt	1.92E-05
Manganese	0.006
Nickel	1.92E-05
Methylene Chloride	0.01
Toluene -2,4-diisocyanate*	0.51
Toluene	0.04
Total	1.10

### Pre-Project Potential to Emit

Pre-project Potential to Emit is used to establish the change in emissions at a facility as a result of this project.

The following table presents the pre-project potential to emit for all criteria pollutants from all emissions units at the facility based on the emissions inventory for the previous permit issued on September 9, 2009.

**Table 4 PRE-PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS**

Source	PM <sub>10</sub> /PM <sub>2.5</sub>		VOC	
	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>
Painting	0.26	0.29	24.25	15.76
Molding	1.15E-04	5.04E-04	0.22	0.94
Welding	0.0228	0.0998	0.00	0.00
<b>Pre-Project Totals</b>	<b>0.285</b>	<b>0.386</b>	<b>24.47</b>	<b>16.70</b>

a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.

b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.

### Post Project Potential to Emit

Post project Potential to Emit is used to establish the change in emissions at a facility and to determine the facility's classification as a result of this project. Post project Potential to Emit includes all permit limits resulting from this project.

The following table presents the post project Potential to Emit for criteria pollutants from all emissions units at the facility as determined by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

**Table 5 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS**

Source	PM <sub>10</sub> /PM <sub>2.5</sub>		VOC	
	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>	lb/hr <sup>(a)</sup>	T/yr <sup>(b)</sup>
Painting	0.26	0.29	24.25	15.76
Molding	1.15E-04	5.04E-04	0.31	1.34
Welding	0.0228	0.0998	0.00	0.00
<b>Post Project Totals</b>	<b>0.285</b>	<b>0.386</b>	<b>24.56</b>	<b>17.10</b>

a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.

b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.

### Change in Potential to Emit

The change in facility-wide potential to emit is used to determine if a public comment period may be required and to determine the processing fee per IDAPA 58.01.01.225. The following table presents the facility-wide change in the potential to emit for criteria pollutants.

**Table 6 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS**

Source	PM <sub>10</sub> /PM <sub>2.5</sub>		VOC	
	lb/hr	T/yr	lb/hr	T/yr
Pre-Project Potential to Emit	0.285	0.386	24.27	16.70
Post Project Potential to Emit	0.285	0.386	24.56	17.10
<b>Changes in Potential to Emit</b>	<b>0.00</b>	<b>0.00</b>	<b>0.29</b>	<b>0.40</b>

**Non-Carcinogenic TAP Emissions**

A summary of the estimated PTE for emissions increase of non-carcinogenic toxic air pollutants (TAP) is provided in the following table.

Pre- and post-project, as well as the change in, non-carcinogenic TAP emissions are presented in the following tables:

**Table 7 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR NON-CARCINOGENIC TOXIC AIR POLLUTANTS**

Non-Carcinogenic Toxic Air Pollutants	Pre-Project 24-hour Average Emissions Rates for Units at the Facility <sup>(a)</sup> (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Xylene	0	20.35563	20.35563	29	No
Ethyl Benzene	0	3.59217	3.59217	29	No
Cumene	0	1.454904	1.454904	16.3	No
Trimethylbenzene (includes 1,3,5- and 1,2,4- isomers)	0	12.35	12.35	8.2	Yes
Carbon Black	0	0.009481	0.009481	0.23	No
Zinc	0	0.029079	0.029079	0.667	No
Cr	4.38E-06	4.38E-06	0.0000	0.033	No
Co	4.38E-06	4.38E-06	0.0000	0.0033	No
Mn	0.001393	0.001393	0.0000	0.067 (fume)	No
Toluene-2,4-diisocyanate	0.01786	0.0859	0.0681	0.003	Yes
Bisphenol-A, Epichlorohydrin Polymer	0	0.030465	0.030465	0.1	No
Propylene glycol methyl ether acetate	0	0.031734	0.031734	24	No
Methyl ethyl ketone	0	0.050775	0.050775	39.3	No
Toluene	0	0.010155	0.010155	25	No
Dipropylene glycol monomethyl ether acetate	0	0.006347	0.006347	40	No

(a) Emissions from the new paint room are set to zero since the emission points are different

Some of the PTEs for non-carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is required for toluene-2,4-diisocyanate (TDI) and trimethylbenzene because the 24-hour average non-carcinogenic screening ELs identified in IDAPA 58.01.01.585 were exceeded.

**Carcinogenic TAP Emissions**

A summary of the estimated PTE for emissions increase of carcinogenic toxic air pollutants (TAP) is provided in the following table.

**Table 8 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR CARCINOGENIC TOXIC AIR POLLUTANTS**

Carcinogenic Toxic Air Pollutants	Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Change in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Ni	0	4.38E-06	4.38E-06	0.000027	N
Dichloromethane (methylene chloride)	0	0.00654	0.00654	0.0016	N

None of the PTEs for carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is not required for any carcinogenic TAP because none of the annual average carcinogenic screening ELs identified in IDAPA 58.01.01.586 were exceeded.

**Post Project HAP Emissions**

The following table presents the post project potential to emit for HAP pollutants from all emissions units at the facility as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

**Table 9 HAZARDOUS AIR POLLUTANTS EMISSIONS POTENTIAL TO EMIT SUMMARY**

Hazardous Air Pollutants	PTE (T/yr)
Xylene	0.34
Ethyl Benzene	0.11
Cumene	0.09
Chromium	5.18E-07
Cobalt	5.18E-07
Manganese	1.62E-04
Nickel	5.18E-07
Methylene Chloride	0.01
Toluene -2,4-diisocyanate	0.51
Toluene	0.04
<b>Total</b>	<b>1.10</b>

***Ambient Air Quality Impact Analyses***

As presented in the Modeling Memo in Appendix B, the estimated emission rates of the TAPs, toluene-2,4-diisocyanate and trimethylbenzene from this project exceeded applicable screening emission levels (EL). Since the paint room was modified, emissions were set to zero, triggering the modeling for trimethylbenzene, even though paint usage remains the same. Refer to the Emissions Inventories section for additional information concerning the emission inventories.

The applicant has demonstrated pre-construction compliance to DEQ’s satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard. The applicant has also demonstrated pre-construction compliance to DEQ’s satisfaction that the emissions increase due to this permitting action will not exceed any acceptable ambient concentration (AAC) or acceptable ambient concentration for carcinogens (AACC) for toxic air pollutants (TAP).

An ambient air quality impact analyses document has been crafted by DEQ based on a review of the modeling analysis submitted in the application. That document is part of the final permit package for this permitting action (see Appendix B).

## REGULATORY ANALYSIS

### ***Attainment Designation (40 CFR 81.313)***

The facility is located in Bingham County, which is designated as attainment or unclassifiable for PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>2</sub>, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

### ***Facility Classification***

The AIRS/AFS facility classification codes are as follows:

For THAPs (Total Hazardous Air Pollutants) Only:

- A = Use when any one HAP has actual or potential emissions  $\geq 10$  T/yr or if the aggregate of all HAPS (Total HAPs) has actual or potential emissions  $\geq 25$  T/yr.
- SM80 = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the permit sets limits  $\geq 8$  T/yr of a single HAP or  $\geq 20$  T/yr of THAP.
- SM = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the potential HAP emissions are limited to  $< 8$  T/yr of a single HAP and/or  $< 20$  T/yr of THAP.
- B = Use when the potential to emit without permit restrictions is below the 10 and 25 T/yr major source threshold
- UNK = Class is unknown

For All Other Pollutants:

- A = Actual or potential emissions of a pollutant are  $\geq 100$  T/yr.
- SM80 = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are  $\geq 80$  T/yr.
- SM = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are  $< 80$  T/yr.
- B = Actual and potential emissions are  $< 100$  T/yr without permit restrictions.
- UNK = Class is unknown.

Table 10 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	5.83	0.386	100	B
PM <sub>10</sub> /PM <sub>2.5</sub>	5.83	0.386	100	B
SO <sub>2</sub>	0	0	100	B
NO <sub>x</sub>	0	0	100	B
CO	0	0	100	B
VOC	16.7	17.10	100	B
HAP (single)	0.51	0.51	10	B
HAP (Total)	1.1	1.1	25	B

**Permit to Construct (IDAPA 58.01.01.201)**

IDAPA 58.01.01.201 ..... Permit to Construct Required

The permittee has requested that a PTC be issued to the facility for the proposed modified emissions source. Therefore, a permit to construct is required to be issued in accordance with IDAPA 58.01.01.220. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

**Tier II Operating Permit (IDAPA 58.01.01.401)**

IDAPA 58.01.01.401 ..... Tier II Operating Permit

The application was submitted for a permit to construct (refer to the Permit to Construct section), and an optional Tier II operating permit has not been requested. Therefore, the procedures of IDAPA 58.01.01.400-410 were not applicable to this permitting action.

**Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)**

IDAPA 58.01.01.301 ..... Requirement to Obtain Tier I Operating Permit

Post project facility-wide emissions from this facility do not have a potential to emit greater than 100 tons per year for PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO, VOC, and HAP or 10 tons per year for any one HAP or 25 tons per year for all HAP combined as demonstrated previously in the Emissions Inventories Section of this analysis. Therefore, the facility is not a Tier I source in accordance with IDAPA 58.01.01.006 and the requirements of IDAPA 58.01.01.301 do not apply.

**PSD Classification (40 CFR 52.21)**

40 CFR 52.21 ..... Prevention of Significant Deterioration of Air Quality

The facility is not a major stationary source as defined in 40 CFR 52.21(b)(1), nor is it undergoing any physical change at a stationary source not otherwise qualifying under paragraph 40 CFR 52.21(b)(1) as a major stationary source, that would constitute a major stationary source by itself as defined in 40 CFR 52. Therefore in accordance with 40 CFR 52.21(a)(2), PSD requirements are not applicable to this permitting action. The facility is not a designated facility as defined in 40 CFR 52.21(b)(1)(i)(a), and does not have facility-wide emissions of any criteria pollutant that exceed 250 T/yr.

**NSPS Applicability (40 CFR 60)**

EM Tanner & Sons, Inc. is not in any of the source categories subject to regulation under 40 CFR 60.

**NESHAP Applicability (40 CFR 61)**

EM Tanner & Sons, Inc. is not in any of the source categories subject to regulation under 40 CFR 61.

**MACT Applicability (40 CFR 63)**

**40 CFR 63 Subpart XXXXXX**..... National Emission Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories

*63.11514 Applicability and compliance dates*

*63.11514(a) Am I subject to this subpart?*

You are subject to this subpart if you own or operate an area source that is primarily engaged in the operations in one of the nine source categories listed in paragraphs (a)(1) through (9) of this section. Descriptions of these source categories are shown in Table 1 of this subpart.

- (1) Electrical and Electronic Equipment Finishing Operations;
- (2) Fabricated Metal Products;
- (3) Fabricated Plate Work (Boiler Shops);
- (4) Fabricated Structural Metal Manufacturing;
- (5) Heating Equipment, except Electric;
- (6) Industrial Machinery and Equipment Finishing Operations;
- (7) Iron and Steel Forging;
- (8) Primary Metal Products Manufacturing; and
- (9) Valves and Pipe Fittings

*EM Tanner & Sons, Inc.*

Tanner potentially does fall under one of the nine (9) source categories but documentation provided to DEQ by Donna Lee Jones of the EPA, states that if the facility's Standard Industrial Classification (SIC) code or North American Industry Classification System (NAICS) code are not one of an explicit list, the facility is not subject to the subpart. Tanner does not have a SIC or NAICS code that is applicable to the subpart. Therefore, the facility is not subject to the subpart.

**40 CFR 63 Subpart HHHHHH**..... National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources

*63.11170 Am I subject to this subpart?*

63.11170(a)

You are subject to this subpart if you operate an area source of HAP as defined in paragraph (b) of this section, including sources that are part of a tribal, local, State, or Federal facility and you perform one or more of the activities in paragraphs (a)(1) through (3) of this section:

63.11170(a)(1)

Perform paint stripping using MeCl for the removal of dried paint (including, but not limited to, paint, enamel, varnish, shellac, and lacquer) from wood, metal, plastic, and other substrates.

63.11170(a)(2)

Perform spray application of coatings, as defined in §63.11180, to motor vehicles and mobile equipment including operations that are located in stationary structures at fixed locations, and mobile repair and refinishing operations that travel to the customer's location, except spray coating applications that meet the definition of facility maintenance in §63.11180. However, if you are the owner or operator of a motor vehicle or mobile equipment surface coating operation, you may petition the Administrator for an exemption from this subpart if you can

demonstrate, to the satisfaction of the Administrator, that you spray apply no coatings that contain the target HAP, as defined in §63.11180. Petitions must include a description of the coatings that you spray apply and your certification that you do not spray apply any coatings containing the target HAP. If circumstances change such that you intend to spray apply coatings containing the target HAP, you must submit the initial notification required by 63.11175 and comply with the requirements of this subpart.

63.11170(a) (3)

Perform spray application of coatings that contain the target HAP, as defined in §63.11180, to a plastic and/or metal substrate on a part or product, except spray coating applications that meet the definition of facility maintenance or space vehicle in §63.11180.

*EM Tanner & Sons, Inc.*

Tanner does not use MeCl for paint stripping so they are not subject to section 1. Nor do they spray apply any target HAPs and not subject to section 3. However, Tanner does spray apply mobile potato processing equipment and are thus subject to section 2 and therefore are subject to the subpart. EPA has approved a petition for exemption from Subpart 6H and is no longer subject to the subpart on the compliance date of January 10, 2011 and thereafter.

***Permit Conditions Review***

This section describes the permit conditions for only those permit conditions that have been revised, as a result of this permitting action.

Revised Permit Condition 2.7

Molding, Resin and Hardener Limits in Rubber Room

This permit condition has been revised to increase the allowed usage of Vibrathane B601 or equivalent from 1040 gallons/year to 5000 gallons/year.

**PUBLIC REVIEW**

***Public Comment Opportunity***

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c or IDAPA 58.01.01.404.01.c. During this time, there was not a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

## APPENDIX A – EMISSIONS INVENTORIES

Uncontrolled PM: back calculate 95% efficiency for r

Pollutant	Actual Emissions		PTE Emissions
	lb/hr	tpy	lb/hr
VOCs	24.46699	3.482659	24.46699
PM (Pre) (95% control)	0.30738	0.101287	0.30738
PM (Post) (97.3% control)	0.186993	0.073865	0.186993
Total TAPs	31.97213	1.091496	32.02694

Total PTE Emissions

Product Pollutant	Paint tpy	Molds tpy
PM	0.154517	5.722868
		0.000504

Uncontrolled VOC Total VOC from Emiss

16.70-15.76

HAPS Controlled  
(solids reduced by  
(1-0.973))

Xylene	0.34
Ethyl Benzene	0.11
Cumene	0.09
Chromium	1.92E-05
Cobalt	1.92E-05
Manganese	0.006
Nickel	1.92E-05
Methylene Chloride	0.01
Toluene -2,4 diisocyanate *	0.51
Toluene	0.04
<b>Total</b>	<b>1.1060576</b>

TAPS NCARC

Pollutant	Actual Emissions lb/hr	PTE Emissions lb/hr
Xylene	20.35563	20.35563
Ethyl Benzene	3.59217	3.59217
Cumene	1.454904	1.454904

Trimethylbenzene (includes 1,3,5- and 1,2,4- isomers)	6.331638	6.331638
Carbon Black	0.009481	0.009481
Zinc	0.029079	0.029079
Cr	4.38E-06	4.38E-06
Co	4.38E-06	4.38E-06
Mn	0.001393	0.001393
Toluene-2,4-diisocyanate	0.061806	0.116612
Bisphenol-A, Epichlorohydrin Polymer	0.030465	0.030465
Propylene glycol methyl ether acetate	0.031734	0.031734
Methyl ethyl ketone	0.050775	0.050775
Toluene	0.010155	0.010155
Dipropylene glycol monomethyl ether acetate	0.006347	0.006347

Previous SOB Emissions Inventory - 2009

Paint:

Pollutant	Product	Xylol		Solvent 100	
		lb/hr	tpy	lb/hr	tpy
Xylene		20.36	0.29	0.73	0.04
Ethyl Benzene		3.59	0.05	0.00	0.00
Light Aromatic Solvent Naphtha				0.00	0.00
Light Aromatic Hydrocarbons					
Cumene				1.45	0.09
1,3,5-Trimethylbenzene					
1,2,4-Trimethylbenzene				5.33	0.33
Trimethylbenzene				0.00	0.00
Carbon Black					
Zinc					
Titanium Dioxide					
Mineral Spirits					
VOCs		23.95	0.34	24.25	1.48
PM		0.00	0.00	0.00	0.00
TAPS		23.95	0.34	7.52	0.46

Paint Emissions are emitted based on a 16hr work day from 5am to 7pm  
Paint Emissions are emitted based on a 16hr work day from 5am to 7pm

Weld:

Pollutant	Emission Factor <sup>1</sup>	Actual Emissions		PTE Em
		lb/hr	tpy	lb/hr
PM10	5.2	2.28E-02	2.08E-02	2.28E-02
Cr	0.01	4.38E-05	4.00E-05	4.38E-05
Cr(VI)	ND	n/a	n/a	n/a
Co	0.01	4.38E-05	4.00E-05	4.38E-05
Mn	3.18	1.39E-02	1.27E-02	1.39E-02
Ni	0.01	4.38E-05	4.00E-05	4.38E-05
Pb	ND	n/a	n/a	n/a

1. From AP-42 Table 12.19-1 and 12.19-2 GMAW Welding with Electrode E70S

Actual Amt of Electrode Used per year = 7,994 lbs 1825 opera  
PTE Amt of Electrode Used per year = 38,371 lbs 8760 opera

Facility Wide:

Pollutant	Actual Emissions		PTE Emissions	
	lb/hr	tpy	lb/hr	tpy
Xylene	21.08	0.07	20.36	0.34
Ethyl Benzene	3.77	0.02	3.59	0.11
Light Aromatic Solvent Naphtha	0.00	0.00	0.00	0.00
Light Aromatic Hydrocarbons	2.63	0.19	1.00	0.92
Cumene	1.45	0.02	1.45	0.09
1,3,5-Trimethylbenzene	2.63	0.19	1.00	0.92
1,2,4-Trimethylbenzene	9.72	0.39	5.33	1.86
Trimethylbenzene (includes 1,3,5- and 1,2,4- isomers)	12.35	0.58	6.33	2.77
Carbon Black	0.01	0.00	0.01	0.00
Zinc	0.06	0.01	0.03	0.03
Titanium Dioxide	0.15	0.00	0.15	0.01
Mineral Spirits	25.95	2.02	9.21	9.68
Cr	0.000	0.000	0.000	0.000
Co	0.000	0.000	0.000	0.000
Mn	0.014	0.013	0.014	0.061
Ni	0.000	0.000	0.000	0.000
Dichloromethane (methylene chloride)	0.01	0.01	0.01	0.01
Toluene-2,4-diisocyanate	0.30	0.27	0.08	0.37
Di(methylthio)toluenediamine (DMTDA)	436.50	3.20	436.50	15.34
Bisphenol-A, Epichlorohydrin Polymer	0.03	0.03	0.03	0.13
Propylene glycol methyl ether acetate	0.03	0.03	0.03	0.14
Methyl ethyl ketone	0.05	0.05	0.05	0.22
Toluene	0.01	0.01	0.01	0.04
Dipropylene glycol monomethyl ether acetate	0.01	0.01	0.01	0.03
Glycidoxypropyltrimethoxysilane	0.00	0.00	0.00	0.01
Aliphatic Hydrocarbon	0.15	0.14	0.15	0.66
<b>VOCs</b>	<b>86.07</b>	<b>3.48</b>	<b>24.47</b>	<b>16.70</b>
<b>PM</b>	<b>0.794</b>	<b>0.081</b>	<b>0.285</b>	<b>0.386</b>
<b>Total TAPs</b>	<b>39.18</b>	<b>1.10</b>	<b>32.01</b>	<b>4.34</b>

Pre Project Molding equals Facilitywide minus Paint and Weld					
	PM		VOC		
	lb/hr	T/yr	lb/hr	T/yr	
FW	0.285	0.386	24.47	16.70	
Paint	0.26	0.29	24.25	15.76	
Weld	2.28E-02	9.98E-02			
Mold	1.15E-04	5.04E-04	2.19E-01	9.37E-01	

Post Project molding equals 3960/5000 added gals of B01, all VOC and no Particulate, from molding page 2

VOC	
lb/hr	T/yr
0.22	0.94
0.091874	0.40241
0.31	1.34

ubber room and 97.3% for paint, and no filtering for welding

From Molds  
PM2 0.23 7.29885E-05 6.66E-05 7.3E-05 0.00032

2. Assumes paint brush/rag transfer efficiency of 95% and filter particulate capture efficiency of 95%.

Product Name M800 Urethane Release

	Actual	PTE		
Facility Oper	1825	8760	Product Density	6.144361 lbs/gal
Annual Potential	307.218	1474.647	Specific Gravity	0.74
Annual Potential	50	240	% Volatiles	90
Max Hourly	0.168339	0.168339	% Non-volatile	10
Max Hourly	0.027397	0.027397		

Volatile Compound	CAS No.	Max Wt. Fr	Emissions (lb/hr)	Emissions	PTE	Emissions	PTE	Emissions
Aliphatic Hydrocarbons	64741-66-8	0.9	0.151504782	0.138248	0.151505	0.663591		
NJ Trade VOCs	80100382-	0.1	0.016833865	0.015361	0.016834	0.073732		
VOCs		0.9	0.114242795	0.104247	0.114243	0.500383		
PM2		0.1	4.20847E-05	3.84E-05	4.21E-05	0.000184		

ion summary-paint room VOC = Molds VOC

0.94

TAPS CARC

TAP EL (lb/hr)

29  
29  
16.3

8.2  
0.23  
0.667  
0.033  
0.0033  
0.067 (fume)  
0.003 Modeling required Ni 4.38E-06 4.38E-06  
0.1 Dichloromethane (methylene chloride) 0.00654 0.00654  
24  
39.3  
25  
40

Black Enamel		White Enamel		Burnt Orange Enamel		To
lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr
						<b>20.36</b>
0.05	0.00	0.07	0.00	0.05	0.06	<b>3.59</b>
						<b>0.00</b>
0.81	0.04	1.00	0.05	0.82	0.83	<b>1.00</b>
						<b>1.45</b>
0.81	0.04	1.00	0.05	0.82	0.83	<b>1.00</b>
1.35	0.07	1.66	0.08	1.37	1.38	<b>5.33</b>
						<b>0.00</b>
0.01	0.00					<b>0.01</b>
0.01	0.00	0.03	0.00	0.02	0.02	<b>0.03</b>
		0.15	0.01			<b>0.15</b>
9.21	0.46	7.98	0.40	8.76	8.82	<b>9.21</b>
12.76	0.64	12.30	0.62	12.60	12.67	<b>24.25</b>
0.25	0.01	0.26	0.01	0.26	0.26	<b>0.26</b>
2.23	0.11	2.73	0.14	2.25	2.26	<b>23.95</b>

missions
tpy
9.98E-02
1.92E-04
n/a
1.92E-04
6.10E-02
1.92E-04
n/a

iting hours  
iting hours

## APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

**MEMORANDUM**

**DATE:** November 18, 2016

**TO:** Tom Burnham, Permit Writer, Air Program

**FROM:** Thomas Swain, Air Quality Modeler, Analyst 3, Air Program

**PROJECT:** EM Tanner and Sons, in Blackfoot, Idaho, modification to Permit to Construct (PTC) P-2009.0102, Project 61780, Facility ID No. 011-00036

**SUBJECT:** Demonstration of Compliance with IDAPA 58.01.01.203.02 (NAAQS) and 203.03 (TAPs) as it relates to air quality impact analyses.

---

**Contents**

**1.0 Summary ..... 3**

**2.0 Background Information ..... 4**

    2.1 Project Description ..... 4

    2.2 Proposed Location and Area Classification ..... 5

    2.3 Air Impact Analysis Required for All Permits to Construct ..... 5

    2.4 Significant Impact Level and Cumulative NAAQS Impact Analyses ..... 5

    2.4 Toxic Air Pollutant Analysis ..... 7

**3.0 Analytical Methods and Data ..... 8**

    3.1 Emissions Source Data ..... 8

        3.1.1. Criteria Pollutant Emissions Rates and Modeling Applicability ..... 8

        3.1.2. Toxic Air Pollutant Emissions Rates ..... 10

        3.1.3. Emissions Release Parameters ..... 11

    3.2 Background Concentrations ..... 12

    3.3 Impact Modeling Methodology ..... 12

        3.3.1. General Overview of Analysis ..... 12

        3.3.2 Modeling Protocol and Methodology ..... 13

        3.3.3 Model Selection ..... 13

        3.3.4 Meteorological Data ..... 13

        3.3.5 Effects of Terrain on Modeled Impacts ..... 13

        3.3.6 Facility Layout ..... 14

        3.3.7 Effects of Building Downwash on Modeled Impacts ..... 14

3.3.8 Ambient Air Boundary.....	14
3.3.9 Receptor Network.....	14
3.3.10 Good Engineering Practice Stack Height.....	14
<b>4.0 Impact Modeling Results.....</b>	<b>15</b>
4.1 Results for NAAQS Significant Impact Level Analyses.....	15
4.2 Results for TAPs Impact Analyses.....	15
<b>5.0 Conclusions.....</b>	<b>16</b>

## **1.0 Summary**

EM Tanner and Sons (Tanner) submitted an application for a Permit to Construct (PTC) on September 01, 2016, for an existing facility located in Blackfoot, Idaho. This application is a modification to PTC P-2009.0102.

Tanner is a manufacturing facility that specializes in fabrication and painting of potato processing equipment. Operations include equipment fabrication, assembly, mold production, welding, and equipment painting. The facility process begins with raw metal being sent to the plant. Pieces of metal can be bent, cut, and welded into various types of equipment. Urethane mold casting is also utilized to create parts. The formed components are then painted in the painting room. The paint booth has been updated, and the filter efficiency has increased from 95% to 97.3%. Tanner is requesting an increase in usage of Vibrathane B601 from 1,040 gallons a year to 5,000 gallons a year.

The entire process is discussed in detail in the main body of the DEQ Statement of Basis supporting the issued proposed PTC. This modeling review memorandum provides a summary and approval of the ambient air impact analyses submitted with the permit application. It also describes DEQ's review of those analyses, DEQ's verification analyses, additional clarifications, and conclusions.

Project-specific air quality impact analyses involving atmospheric dispersion modeling of estimated emissions associated with the facility were submitted to DEQ to demonstrate that the facility would not cause or significantly contribute to a violation of any ambient air quality standard as required by IDAPA 58.01.01.203.02 and 203.03 (Idaho Air Rules Section 203.02 and 203.03).

Stantec performed the ambient air impact analyses for this project on behalf of Tanner. The analyses were performed to demonstrate compliance with applicable air quality standards. The DEQ review summarized by this memorandum addressed only the rules, policies, methods, and data pertaining to the air impact analyses used to demonstrate that the estimated emissions increases at the facility associated with the proposed project will not cause or significantly contribute to a violation of any applicable air quality standard. This review did not evaluate compliance with other rules or analyses that do not pertain to the air impact analyses. Evaluation of emissions estimates is the responsibility of the permit writer and is addressed in the main body of the Statement of Basis. The accuracy of emissions estimates was not evaluated as part of DEQ's review of the air impact analyses submitted and described in this modeling review memorandum.

A modeling protocol was not submitted for this project. The PTC application was submitted on September 1, 2016. After review and some sensitivity modeling analyses by DEQ, DEQ responded with a letter of completeness on September 26, 2016.

The final submitted air quality impact analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data (review of emissions estimates was addressed by the DEQ permit writer); 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that estimated potential/allowable emissions are at a level defined as below regulatory concern (BRC) and do not require a NAAQS compliance demonstration; b) that predicted pollutant concentrations from emissions associated with the project as modeled were below Significant Impact Levels (SILs) or other applicable regulatory thresholds; or c) that predicted pollutant concentrations from emissions associated with the project as modeled, when appropriately combined with co-contributing sources and background concentrations, were below applicable National Ambient Air Quality Standards (NAAQS) at ambient air locations where and when the project has a significant impact; 5) showed that Toxic Air Pollutant (TAP) emissions increases associated with the project will not result in increased ambient air impacts exceeding allowable TAP increments.

Table 1 presents key assumptions and results to be considered in the development of the permit.

Air impact analyses are required by Idaho Air Rules to be conducted according to methods outlined in 40 CFR 51, Appendix W (*Guideline on Air Quality Models*). Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition. The submitted information and analyses demonstrated to the satisfaction of the Department that operation of the proposed facility will not cause or significantly contribute to a violation of any ambient air quality standard, provided the key conditions in Table 1 are representative of facility design capacity or operations as limited by a federally enforceable permit condition.

<b>Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES</b>	
<b>Criteria/Assumption/Result</b>	<b>Explanation/Consideration</b>
<b>General Emissions Rates.</b> Emissions rates used in the modeling analyses, as listed in this memorandum, represent maximum potential emissions as given by design capacity or as limited by the issued permit for the specific pollutant and averaging period.	Compliance has not been demonstrated for emissions rates greater than those used in the modeling analyses.
<b>Modeling Thresholds for Criteria Pollutant Emissions.</b> Maximum short-term and long-term emissions of PM <sub>2.5</sub> associated with the proposed project are above the Level 1 threshold for each pollutant. Additionally, modeling was performed for PM <sub>10</sub> to assure consistency with the previous application. Therefore, a demonstration of compliance with NAAQS was done for these pollutants and applicable averaging times.	Project-specific air impact analyses demonstrating compliance with NAAQS, as required by Idaho Air Rules Section 203.02, are required for pollutants having an emissions increase that is greater than Level I level modeling applicability thresholds, or for pollutant increases above BRC thresholds. Compliance with NAAQS has not been demonstrated for emissions that exceed the emission estimates presented in the application.
<b>TAPS Modeling.</b> Emission rates of TAPs per Idaho Air Rules Sections 585 and 586 for TDI (Toluene-2,4-diisocyanate) and Trimethylbenzene exceeded Emissions Screening Level (EL) rates.	Air impact analyses demonstrating compliance with TAPS, as required by Idaho Air Rules Section 203.03, is required for pollutants having an emissions rate greater than ELs. Therefore, a demonstration of compliance with TAPs AAC and AACC was required.

## **2.0 Background Information**

This section provides background information applicable to the project and the site where the facility is located. It also provides a brief description of the applicable air impact analyses requirements for the project.

### ***2.1 Project Description***

Tanner is an existing manufacturing facility located in Blackfoot, Idaho, that specializes in fabrication and painting of potato processing equipment. Tanner is submitting this modification to their existing permit to allow for an increase in usage of Vibrathane B601 from 1,040 gallons a year to 5,000 gallons a year. Because of this, the amount of TDI emitted from the rubber room will increase by 0.06 pounds/hour (lb/hr). No emission increases occur from the sources in the paint room, the other processing area in the facility.

However, the source characteristics that affect pollutant release and dispersion have changed for the sources located in the paint room. Therefore, the pollutants being emitted from the paint room (PM<sub>2.5</sub>, PM<sub>10</sub>, and Trimethylbenzene) have also been modeled to demonstrate compliance with applicable NAAQS and TAP increments.

Tanner's air impact analyses, as part of the permit application, were submitted to show that facility-wide emissions do not cause or contribute to an exceedance of any NAAQS or TAPS AAC or AACC. A detailed description of the facility is listed in Section 1 of the application.

## **2.2 Proposed Location and Area Classification**

Tanner is located in Blackfoot, Idaho. This area is designated as an attainment or unclassifiable area for sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), lead (Pb), ozone (O<sub>3</sub>), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM<sub>10</sub>), and particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers (PM<sub>2.5</sub>). The area is not classified as non-attainment for any criteria pollutants.

## **2.3 Air Impact Analyses Required for All Permits to Construct**

Criteria Pollutant and TAP Impact Analyses for a PTC are addressed in Idaho Air Rules Sections 203.02 and 203.03:

*No permit to construct shall be granted for a new or modified stationary source unless the applicant shows to the satisfaction of the Department all of the following:*

*02. NAAQS. The stationary source or modification would not cause or significantly contribute to a violation of any ambient air quality standard.*

*03. Toxic Air Pollutants. Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

Atmospheric dispersion modeling, using computerized simulations, is used to demonstrate compliance with both NAAQS and TAPs. Idaho Air Rules Section 202.02 states:

*Estimates of Ambient Concentrations. All estimates of ambient concentrations shall be based on the applicable air quality models, data bases, and other requirements specified in 40 CFR 51 Appendix W (Guideline on Air Quality Models).*

## **2.4 Significant Impact Level and Cumulative NAAQS Impact Analyses**

The Significant Impact Level (SIL) analysis for a new facility or proposed modification to a facility involves modeling estimated criteria air pollutant emissions from the facility or modification to determine the potential impacts to ambient air. Air impact analyses are required by Idaho Air Rules to be conducted using methods and data as outlined in 40 CFR 51, Appendix W (Guideline on Air Quality Models). Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition.

A facility or modification is considered to have a significant impact on air quality if maximum modeled impacts to ambient air exceed the established SIL listed in Idaho Air Rules Section 006 (referred to as a

significant contribution in Idaho Air Rules) or as incorporated by reference as per Idaho Air Rules Section 107.03.b. Table 2 lists the applicable SILs.

If modeled maximum pollutant impacts to ambient air from the emissions sources associated with a new facility or modification exceed the SILs, then a cumulative NAAQS impact analysis is necessary to demonstrate compliance with NAAQS and Idaho Air Rules Section 203.02.

DEQ has developed modeling applicability thresholds that effectively assure that project-related emissions increases below stated values will result in ambient air impacts below the applicable SILs. The threshold levels and dispersion modeling analyses supporting those levels are presented in the *State of Idaho Guideline for Performing Air Quality Impact Analyses<sup>1</sup> (Idaho Air Modeling Guideline)*. Use of a modeling threshold represents the use of conservative modeling, performed in support of the threshold, as a project SIL analysis. Project-specific modeling applicability for this project is addressed in Section 3.1.1 of this memorandum.

A cumulative NAAQS impact analysis for attainment area pollutants involves assessing ambient impacts (typically the design values consistent with the form of the standard) from facility-wide emissions, and emissions from any nearby co-contributing sources, and then adding a DEQ-approved background concentration value to the modeled result that is appropriate for the criteria pollutant/averaging-period at the facility location and the area of significant impact. The resulting pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. Table 2 also lists SILs and specifies the modeled design value that must be used for comparison to the NAAQS. NAAQS compliance is evaluated on a receptor-by-receptor basis for the modeling domain.

If the cumulative NAAQS impact analysis indicates a violation of the standard, the permit may not be issued if the proposed project has a significant contribution (exceeding the SIL) to the modeled violation. This evaluation is made specific to both time and space. If the SIL analysis indicates the facility/modification has an impact exceeding the SIL, the facility might not have a significant contribution to a violation if impacts are below the SIL at the specific receptor showing the violation during the time periods when a modeled violation occurred.

<b>Pollutant</b>	<b>Averaging Period</b>	<b>Significant Impact Levels<sup>a</sup> (µg/m<sup>3</sup>)<sup>b</sup></b>	<b>Regulatory Limit<sup>c</sup> (µg/m<sup>3</sup>)</b>	<b>Modeled Design Value Used<sup>d</sup></b>
PM <sub>10</sub> <sup>e</sup>	24-hour	5.0	150 <sup>f</sup>	Maximum 6 <sup>th</sup> highest <sup>g</sup>
PM <sub>2.5</sub> <sup>h</sup>	24-hour	1.2	35 <sup>i</sup>	Mean of maximum 8 <sup>th</sup> highest <sup>j</sup>
	Annual	0.3	12 <sup>k</sup>	Mean of maximum 1 <sup>st</sup> highest <sup>l</sup>
Carbon monoxide (CO)	1-hour	2,000	40,000 <sup>m</sup>	Maximum 2 <sup>nd</sup> highest <sup>n</sup>
	8-hour	500	10,000 <sup>m</sup>	Maximum 2 <sup>nd</sup> highest <sup>n</sup>
Sulfur Dioxide (SO <sub>2</sub> )	1-hour	3 ppb <sup>o</sup> (7.8 µg/m <sup>3</sup> )	75 ppb <sup>p</sup> (196 µg/m <sup>3</sup> )	Mean of maximum 4 <sup>th</sup> highest <sup>q</sup>
	3-hour	25	1,300 <sup>m</sup>	Maximum 2 <sup>nd</sup> highest <sup>n</sup>
	24-hour	5	365 <sup>m</sup>	Maximum 2 <sup>nd</sup> highest <sup>n</sup>
	Annual	1.0	80 <sup>r</sup>	Maximum 1 <sup>st</sup> highest <sup>n</sup>
Nitrogen Dioxide (NO <sub>2</sub> )	1-hour	4 ppb (7.5 µg/m <sup>3</sup> )	100 ppb <sup>s</sup> (188 µg/m <sup>3</sup> )	Mean of maximum 8 <sup>th</sup> highest <sup>t</sup>
	Annual	1.0	100 <sup>r</sup>	Maximum 1 <sup>st</sup> highest <sup>n</sup>
Lead (Pb)	3-month <sup>u</sup>	NA	0.15 <sup>r</sup>	Maximum 1 <sup>st</sup> highest <sup>n</sup>
	Quarterly	NA	1.5 <sup>r</sup>	Maximum 1 <sup>st</sup> highest <sup>n</sup>
Ozone (O <sub>3</sub> )	8-hour	40 TPY VOC <sup>v</sup>	75 ppb <sup>w</sup>	Not typically modeled

- 
- a. Idaho Air Rules Section 006 (definition for significant contribution) or as incorporated by reference as per Idaho Air Rules Section 107.03.b.
  - b. Micrograms per cubic meter.
  - c. Incorporated into Idaho Air Rules by reference, as per Idaho Air Rules Section 107.
  - d. The maximum 1<sup>st</sup> highest modeled value is always used for the significant impact analysis unless indicated otherwise. Modeled design values are calculated for each ambient air receptor.
  - e. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
  - f. Not to be exceeded more than once per year on average over 3 years.
  - g. Concentration at any modeled receptor when using five years of meteorological data.
  - h. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
  - i. 3-year mean of the upper 98<sup>th</sup> percentile of the annual distribution of 24-hour concentrations.
  - j. 5-year mean of the 8<sup>th</sup> highest modeled 24-hour concentrations at the modeled receptor for each year of meteorological data modeled. For the SIL analysis, the 5-year mean of the 1<sup>st</sup> highest modeled 24-hour impacts at the modeled receptor for each year.
  - k. 3-year mean of annual concentration.
  - l. 5-year mean of annual averages at the modeled receptor.
  - m. Not to be exceeded more than once per year.
  - n. Concentration at any modeled receptor.
  - o. Interim SIL established by EPA policy memorandum.
  - p. 3-year mean of the upper 99<sup>th</sup> percentile of the annual distribution of maximum daily 1-hour concentrations.
  - q. 5-year mean of the 4<sup>th</sup> highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of 1<sup>st</sup> highest modeled 1-hour impacts for each year is used.
  - r. Not to be exceeded in any calendar year.
  - s. 3-year mean of the upper 98<sup>th</sup> percentile of the annual distribution of maximum daily 1-hour concentrations.
  - t. 5-year mean of the 8<sup>th</sup> highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of maximum modeled 1-hour impacts for each year is used.
  - u. 3-month rolling average.
  - v. An annual emissions rate of 40 ton/year of VOCs is considered significant for O<sub>3</sub>.
  - w. Annual 4<sup>th</sup> highest daily maximum 8-hour concentration averaged over three years. The O<sub>3</sub> standard was revised (the notice was signed by the EPA Administrator on October 1, 2015) to 70 ppb. However, this standard will not be applicable for permitting purposes until it is incorporated by reference *sine die* into Idaho Air Rules.

Compliance with Idaho Air Rules Section 203.02 is generally demonstrated if: a) all modeled impacts of the SIL analysis are below the applicable SIL or other level determined to be inconsequential to NAAQS compliance; or b) modeled design values of the cumulative NAAQS impact analysis (modeling all emissions from the facility and co-contributing sources, and adding a background concentration) are less than applicable NAAQS at receptors where impacts from the proposed facility/modification exceeded the SIL or other identified level of consequence; or c) if the cumulative NAAQS analysis showed NAAQS violations, the impact of proposed facility/modification to any modeled violation was inconsequential (typically assumed to be less than the established SIL) for that specific receptor and for the specific modeled time when the violation occurred.

## **2.5 Toxic Air Pollutant Analyses**

Emissions of toxic substances are generally addressed by Idaho Air Rules Section 161:

*Any contaminant which is by its nature toxic to human or animal life or vegetation shall not be emitted in such quantities or concentrations as to alone, or in combination with other contaminants, injure or unreasonably affect human or animal life or vegetation.*

Permitting requirements for toxic air pollutants (TAPs) from new or modified sources are specifically addressed by Idaho Air Rules Section 203.03 and require the applicant to demonstrate to the satisfaction of DEQ the following:

*Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

Per Idaho Air Rules Section 210, if the total project-wide emissions increase of any TAP associated with a new source or modification exceeds screening emission levels (ELs) of Idaho Air Rules Section 585 or 586, then the ambient impact of the emissions increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of Idaho Air Rules Section 585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of Idaho Air Rules Section 586, then compliance with TAP requirements has been demonstrated.

Idaho Air Rules Section 210.20 states that if TAP emissions from a specific source are regulated by the Department or EPA under 40 CFR 60, 61, or 63, then a TAP impact analysis under Section 210 is not required for that TAP.

### **3.0 Analytical Methods and Data**

This section describes the methods and data used in analyses to demonstrate compliance with applicable air quality impact requirements.

#### **3.1 Emission Source Data**

Emissions rates of criteria pollutants and TAPs for the project were provided by the applicant for various applicable averaging periods. Review and approval of estimated emissions was the responsibility of the DEQ permit writer, and is not addressed in this modeling memorandum. DEQ modeling review included verification that the application's potential emissions rates were properly used in the model. The rates listed must represent the maximum allowable rate as averaged over the specified period.

Emissions rates used in the dispersion modeling analyses submitted by Stantec, as listed in this memorandum, should be reviewed by the DEQ permit writer against those in the emissions inventory of the permit application. All modeled criteria air pollutant and TAP emissions rates should be equal to or greater than the facility's emissions calculated in other sections of the PTC application or requested permit allowable emission rates.

##### **3.1.1 Criteria Pollutant Emissions Rates and Modeling Applicability**

If facility-wide potential to emit (PTE) values for a specific criteria pollutant would qualify for a below regulatory concern (BRC) permit exemption as per Idaho Air Rules Section 221 if it were not for some pollutants exceeding BRC thresholds, then an air impact analysis for that pollutant may not be required for permit issuance. DEQ's regulatory interpretation policy of exemption provisions of Idaho Air Rules (Policy on NAAQS Compliance Demonstration Requirements, DEQ policy memorandum, July 11, 2014) is that: "A DEQ NAAQS compliance assertion will not be made by the DEQ modeling group for specific criteria pollutants having a project emissions increase below BRC levels, provided the proposed project would have qualified for a Category I Exemption for BRC emissions quantities except for the emissions of another criteria pollutant." The interpretation policy also states that the exemption criteria of uncontrolled PTE not

to exceed 100 ton/year (Idaho Air Rules Section 220.01.a.i) is not applicable when evaluating whether a NAAQS impact analyses is required. A permit will be issued limiting PTE below 100 ton/year, thereby negating the need to maintain calculated uncontrolled PTE under 100 ton/year.

DEQ has generated non-site-specific project modeling thresholds for those projects that cannot use the BRC exemption from an impact analysis (if there are specific permitted emissions limits that require changing, etc.). Modeling applicability thresholds are provided in the *Idaho Air Modeling Guideline*. These thresholds were based on assuring an ambient impact of less than established SIL for that specific pollutant and averaging period.

If project-specific total emissions rates are below Level I Modeling Thresholds, project-specific air impact analyses are not necessary for permitting. Use of level II modeling thresholds are conditional, requiring DEQ approval. Table 3 provides the emissions-based modeling applicability summary. As mentioned, Stantec compared emission estimates with Level I Modeling Thresholds, and determined that modeling is necessary for the PM criteria pollutants listed in Table 3. Emissions as modeled per source are listed in Table 4. The applicant states that no fuel burning equipment exists at the facility, and therefore there are no emissions of the gaseous criteria pollutants NO<sub>2</sub>, SO<sub>2</sub>, or CO.

An impact analysis must be performed for pollutant increases that would not qualify for the BRC exemption from an impact analysis. Emissions of all criteria pollutants resulting from the proposed project did not exceed BRC thresholds. However, because emissions-affecting conditions in Tanner’s existing permit required modification, the project could not qualify for a BRC exemption regardless of emissions quantities. Also, since source locations and characterizations were modified from those used in the previous 2009 modeling application, Stantec elected to compare total facility emissions with Level 1 modeling thresholds for all criteria pollutants. The emissions for PM<sub>2.5</sub> are above the Level 1 modeling thresholds, therefore requiring an air impact analysis for this pollutant. Emissions from PM<sub>10</sub> were also modeled to be consistent with the previous permit application (2009).

**Table 3. MODELING APPLICABILITY ANALYSIS RESULTS**

<b>Pollutant</b>	<b>Averaging Period</b>	<b>Emissions</b>	<b>BRC Threshold<sup>a</sup> (ton/year)</b>	<b>Level I Modeling Thresholds (lb/hour or ton/year)</b>	<b>Level II Modeling Thresholds (lb/hour or ton/year)</b>	<b>Modeling Required</b>
PM <sub>2.5</sub>	Annual	0.36 ton/yr	1	0.350	4.1	Yes
	24-hour	0.19 lb/hr		0.054	0.63	Yes
PM <sub>10</sub>	24-hour	0.19 lb/hr	1.5	0.22	2.6	No
NO <sub>x</sub>	Annual	0.0 ton/yr	4	1.2	14	No
	1-hour	0.00 lb/hr		0.2	2.4	No
SO <sub>2</sub>	Annual	0.00 ton/yr	4	1.2	14	No
	1-hour	0.00 lb/hr		0.21	2.5	No
CO	1,8 hour	0.0 lb/hr	10	15	175	No

<sup>a</sup> The BRC exemption threshold is not applicable for this project.

<b>Source ID</b>	<b>Source Description</b>	<b>PM<sub>10</sub> 1-Hour (lb/hr)<sup>a</sup></b>	<b>PM<sub>2.5</sub> 1-Hour (lb/hr)<sup>a</sup></b>	<b>PM<sub>2.5</sub> Annual (tpy)<sup>b</sup></b>
RUBBEREX	MoldingRoomExhaust	1.15E-04	1.15E-04	5.04E-04
PAINTEX1	Paint Room Exhaust #1	0.0814	0.0814	0.084
PAINTEX2	Paint Room Exhaust #2	0.0814	0.0814	0.084

<sup>a</sup>. Pounds/hour.

<sup>b</sup>. Tons/year.

Ozone (O<sub>3</sub>) differs from other criteria pollutants in that it is not typically emitted directly into the atmosphere. O<sub>3</sub> is formed in the atmosphere through reactions of VOCs, NO<sub>x</sub>, and sunlight. Atmospheric dispersion models used in stationary source air permitting analyses (see Section 3.3.3) cannot be used to estimate O<sub>3</sub> impacts resulting from VOC and NO<sub>x</sub> emissions from an industrial facility. O<sub>3</sub> concentrations resulting from area-wide emissions are predicted by using more complex airshed models such as the Community Multi-Scale Air Quality (CMAQ) modeling system. Use of the CMAQ model is very resource intensive and DEQ asserts that performing a CMAQ analysis for a particular permit application is not typically a reasonable or necessary requirement for air quality permitting.

Addressing secondary formation of O<sub>3</sub> has been somewhat addressed in EPA regulation and policy. As stated in a letter from Gina McCarthy of EPA to Robert Ukeiley, acting on behalf of the Sierra Club (letter from Gina McCarthy, Assistant Administrator, United States Environmental Protection Agency, to Robert Ukeiley, January 4, 2012):

*... footnote 1 to sections 51.166(I)(5)(I) of the EPA's regulations says the following: "No de minimis air quality level is provided for ozone. However, any net emission increase of 100 tons per year or more of volatile organic compounds or nitrogen oxides subject to PSD would be required to perform an ambient impact analysis, including the gathering of air quality data."*

*The EPA believes it unlikely a source emitting below these levels would contribute to such a violation of the 8-hour ozone NAAQS, but consultation with an EPA Regional Office should still be conducted in accordance with section 5.2.1.c. of Appendix W when reviewing an application for sources with emissions of these ozone precursors below 100 TPY."*

Allowable emissions estimates of VOCs and NO<sub>x</sub> are below the 100 tons/year threshold, and DEQ determined it was not appropriate or necessary to require a quantitative source specific O<sub>3</sub> impact analysis.

### **Secondary Particulate Formation**

The impact from secondary particulate formation resulting from emissions of NO<sub>x</sub>, SO<sub>2</sub>, and/or VOCs was assumed by DEQ to be negligible based on the magnitude of emissions and the short distance from emissions sources to modeled receptors where maximum PM<sub>10</sub> and PM<sub>2.5</sub> impacts would be anticipated.

#### **3.1.2 Toxic Air Pollutant Emissions Rates**

TAP emissions regulations under Idaho Air Rules Section 220 are only applicable for new or modified sources constructed after July 1, 1995. The submitted emissions inventory in the application identified four TAPs having potential emission increases that could exceed screening emissions levels (ELs) of Idaho Air

Rules Section 585 or 586. Potential increases in emissions of other TAPs were all less than applicable ELs. Table 5 lists emission increases for these TAPs and compares them to the EL.

Pollutant	CAS No.	Total Emissions Increase (lbs/hr) <sup>a</sup>	Screening Emissions Level (EL) (lbs/hr)
TDI <sup>a</sup>	584-84-9	0.06	0.003
Trimethylbenzene	2551-13-7	12.4	8.2

- <sup>a</sup>. Pounds/hour.
- <sup>b</sup>. Toluene-2,4-diisocyanate.

Table 6 provides source-specific TAP emission rates used in the air impact analyses.

Source ID	Source Description	TDI <sup>a</sup> (lb/hr) <sup>c</sup>	TRIMETH <sup>b</sup> (lb/hr)
RUBBEREX	Molding Room Exhaust	0.06	0
PAINTEX1	Paint Room Exhaust #1	0	6.175
PAINTEX2	Paint Room Exhaust #2	0	6.175

- <sup>a</sup>. Toluene-2,4-diisocyanate.
- <sup>b</sup>. Trimethylbenzene.
- <sup>c</sup>. Pounds/hour.

### 3.2 Emission Release Parameters

Table 7 provides emissions release parameters, including stack height, stack diameter, exhaust temperature, and exhaust velocity for facility sources as used in the final modeling assessment.

Stack parameters used in the modeling analyses were largely documented/justified adequately in the application. Exhaust flows were calculated based on updated specifications proposed since the latest application.

Source ID	Source Description	Easting (X) <sup>a</sup> (m)	Northing (Y) <sup>b</sup> (m)	Stack Height (ft) <sup>c</sup>	Temperature (°F) <sup>d</sup>	Exit Velocity (fps) <sup>e</sup>	Stack Diam (ft) <sup>c</sup>
RUBBEREX	MoldingRoomExhaust	390562	4783569	25	72.0	116.71	2
PAINTEX1	Paint Room Exhaust #1	390528	4783638	20	72.0	41.58	3.5
PAINTEX2	Paint Room Exhaust #2	390529	4783631	20	72.0	41.58	3.5

- <sup>a</sup>. Universal Transverse Mercator coordinates in meters in the east/west direction.
- <sup>b</sup>. Universal Transverse Mercator coordinates in meters in the north/south direction.
- <sup>c</sup>. Feet.
- <sup>d</sup>. Degrees Fahrenheit.
- <sup>e</sup>. Feet/second.

### 3.2 Background Concentrations

Background concentrations were provided by DEQ from the Northwest International Air Quality Environmental Science and Technology Consortium (NW AIRQUEST) *Lookup 2009-2011 Design Values of Criteria Pollutants*<sup>2</sup>. These design value air pollutant levels are based on regional scale air pollution modeling of Washington, Oregon, and Idaho, with values influenced by monitoring data as a function of distance from the monitor. DEQ has determined that the NW AIRQUEST background values are reasonably representative of the facility locale. NW AIRQUEST background concentration values are listed in a column of Table 9, Cumulative NAAQS Impact Analyses Results for Criteria Pollutants.

### 3.3 Impact Modeling Methodology

This section describes the modeling methods used by the applicant to demonstrate preconstruction compliance with applicable air quality standards.

#### 3.3.1 General Overview of Analyses

Stantec performed project-specific air impact analyses that were determined by DEQ to be reasonably representative of the proposed facility as described in the application. Results of the submitted analyses demonstrate compliance with applicable air quality standards to DEQ's satisfaction, provided the facility is operated as described in the submitted application and in this memorandum.

Table 8 provides a brief description of parameters used in the modeling analyses.

Parameter	Description/Values	Documentation/Addition Description
General Facility Location	Blackfoot, Idaho	The facility is located in an area that is attainment or unclassified for all criteria air pollutants
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 15181.
Meteorological Data	2008-2012 Pocatello, Idaho NWS, and upper air data from Boise, ID	See Section 3.3.4 for a detailed discussion on the meteorological data.
Terrain	Considered	See Section 5.3 below.
Building Downwash	Considered	Because there are substantial buildings at the Tanner facility, BPIP-PRIME was used to evaluate building dimensions for consideration of downwash effects in AERMOD.
Receptor Grid	Grid 1	10-meter spacing along the ambient air boundary and out to distances of 250 from the center of the facility
	Grid 2	25-meter spacing out to distances of 400 meters with respect to the facility
	Grid 3	50-meter spacing out to approximately 700 meters
	Grid 4	100-meter spacing for distances out to 1200 meters from facility
	Grid 5	250-meter spacing for distances out to 2500 meters from facility
	Grid 6	500-meter spacing for distances out to 5000 meters from facility

### **3.3.2 Modeling protocol and Methodology**

As mentioned in Section 1, a modeling protocol was not submitted for this project. An application was submitted on September 1, 2016. After DEQ review and performance of some sensitivity modeling analyses, DEQ responded with a letter of completeness on September 1, 2016. In sensitivity analyses, DEQ assessed the modeling with additional meteorological data collected near Blackfoot, Idaho, that had been utilized previously in a different modeling application by a different applicant. Overall, the results from this sensitivity analyses were adequately similar to those presented in the Tanner application.

Project-specific modeling and other required impact analyses were generally conducted using data and methods discussed in pre-application correspondence and in the *Idaho Air Quality Modeling Guideline*<sup>1</sup>.

### **3.3.3 Model Selection**

Idaho Air Rules Section 202.02 requires that estimates of ambient concentrations be based on air quality models specified in 40 CFR 51, Appendix W (Guideline on Air Quality Models). The refined, steady state, multiple source Gaussian dispersion model AERMOD was promulgated as the replacement model for ISCST3 in December 2005. AERMOD retains the single straight line trajectory of ISCST3, but includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD version 15181 was used by the applicant for the air impact modeling analyses to evaluate impacts of the facility. This version is the current version at the time the application was received by DEQ.

### **3.3.4 Meteorological Data**

Stantec used meteorological data collected at the Pocatello, Idaho, airport for the period 2008-2012. The meteorological model input files for this project were not provided by IDEQ, but were selected by Stantec as the most available representative for this project. While this data is not from a station in Blackfoot, it was collected at a relatively close NWS ASOS airport, which does not exist in Blackfoot, Idaho. Upper air data was taken from the Boise, Idaho, airport. DEQ performed sensitivity analyses using a different dataset collected at a monitor closer to the facility (used in a separate application for another facility), obtaining very similar maximum modeled impacts. Therefore, DEQ determined the meteorological data used in the submitted analyses was representative for modeling for this permit in the locale of Tanner.

### **3.3.5 Effects of Terrain on Modeled Impacts**

Terrain data were extracted from United States Geological Survey (USGS) National Elevation Dataset (NED) files in the WGS84 datum (approximately equal to the NAD83 datum). Stantec used 1/3 Arc Second resolution data, which is adequate for this analysis.

The terrain preprocessor AERMAP Version 11103 was used to extract the elevations from the NED files and assign them to receptors in the modeling domain in a format usable by AERMOD. AERMAP also determined the hill-height scale for each receptor. The hill-height scale is an elevation value based on the surrounding terrain which has the greatest effect on that individual receptor. AERMOD uses those heights to evaluate whether the emissions plume has sufficient energy to travel up and over the terrain or if the plume will travel around the terrain.

DEQ reviewed the area surrounding the facility by using the web-based mapping program Google Earth,

which uses the WGS84 datum. DEQ also overlaid modeling files with a digital photograph background images acquired from the 2013 ARCGIS NAIP (National Agriculture Imagery Program) data base. The immediate area is effectively flat with regard to dispersion modeling affects. Elevations in the modeling domain matched those indicated by the background images

### **3.3.6 Facility Layout**

DEQ compared the facility layout used in the model to that indicated in aerial photographs on Google Earth. The modeled layout was consistent with aerial photographs in Google Earth as well as from those in the ARCGIS 2013 NAIP database.

### **3.3.7 Effects of Building Downwash on Modeled Impacts**

Potential downwash effects on emissions plumes are usually accounted for in the model by using building dimensions and locations (locations of building corners, base elevation, and building heights). Dimensions and orientation of proposed buildings were needed as input to the Building Profile Input Program for the Plume Rise Model Enhancements downwash algorithm (BPIP-PRIME) because there are existing structures affecting the emissions plumes at the facility.

### **3.3.8 Ambient Air Boundary**

Ambient air is defined in Section 006 of the Idaho Air Rules as “that portion of the atmosphere, external to buildings, to which the general public has access.” Public access to the Tanner facility is precluded by a fence, no trespassing signs, and site personnel.

### **3.3.9 Receptor Network**

Table 8 describes the receptor grid used in the submitted analyses. The receptor grid met the minimum recommendations specified in the *Idaho Air Quality Modeling Guideline*<sup>1</sup>. DEQ determined this grid assured maximum impacts were reasonably resolved by the model considering: 1) types of sources modeled; 2) modeled impacts and the modeled concentration gradient; 3) conservatism of the methods and data used as inputs to the analyses; 4) potential for continual exposures or exposure to sensitive receptors. Additionally, DEQ performed sensitivity analyses using a finer grid-spaced receptor network to assure that maximum concentrations were below all applicable standards.

### **3.3.10 Good Engineering Practice Stack Height**

An allowable good engineering practice (GEP) stack height may be established using the following equation in accordance with Idaho Air Rules Section 512.03.b:

$H = S + 1.5L$ , where:

H = good engineering practice stack height measured from the ground-level elevation at the base of the stack.

S = height of the nearby structure(s) measured from the ground-level elevation at the base of the stack. of

L = lesser dimension, height or projected width, of the nearby structure.

Buildings exist in the vicinity of all point sources modeled. Therefore, consideration of downwash caused by nearby buildings was required.

## 4.0 Impact Modeling Results

### 4.1 Results for NAAQS Significant Impact Level Analyses

Stantec performed air quality modeling for those criteria pollutants having emissions exceeding Level I modeling thresholds (PM<sub>10</sub>, PM<sub>2.5</sub>). DEQ confirmed the results with sensitivity modeling runs that incorporated slightly revised annual emissions. Results from the cumulative NAAQS impact analyses, modeling all emissions sources of these pollutants, are listed in Table 9. All modeled impacts demonstrate compliance with all NAAQS.

Pollutant	Averaging Period	Maximum Modeled Concentration (ug/m <sup>3</sup> ) <sup>a</sup>	Background Concentration (ug/m <sup>3</sup> ) <sup>a</sup>	Total Impact (ug/m <sup>3</sup> ) <sup>a</sup>	NAAQS <sup>b</sup> (ug/m <sup>3</sup> ) <sup>a</sup>
PM <sub>10</sub>	24-hour	5.53	81.0	86.5	150.0
PM <sub>2.5</sub>	24-hour	4.45	7.3	11.8	35.0
	Annual	0.36	2.8	3.2	12.0

<sup>a</sup>. Micrograms per cubic meter.

<sup>b</sup>. National Ambient Air Quality Standard.

### 4.2 Results for TAPs Impact Analyses

Dispersion modeling is required to demonstrate compliance with TAP increments specified by Idaho Air Rules Section 585 and 586 for those TAPs with project-specific emission increases exceeding emissions screening levels (ELs). Because there are several TAPs emissions that exceeds the ELs, modeling analyses were needed to demonstrate compliance with those AACs and AAACs. Results are listed in Table 10 and show compliance with all AACs and AAACs.

Pollutant	CAS No.	Average	Modeled Conc. (ug/m <sup>3</sup> ) <sup>a</sup>	AAC/AAAC <sup>b</sup> (ug/m <sup>3</sup> )	%AAC/AAAC
TDI <sup>c</sup>	584-84-9	24 hour	1.90	2.0	95%
Trimethylbenzene	2551-13-7	24 hour	474.0	6,150	8%

<sup>a</sup>. Micrograms per cubic meter.

<sup>b</sup>. Acceptable Ambient Concentration or Acceptable Ambient Concentration of a Carcinogen.

<sup>c</sup>. Toluene-2,4-diisocyanate

## **5.0 Conclusions**

The ambient air impact analyses and other air quality analyses submitted with the PTC application demonstrated to DEQ's satisfaction that emissions from the Tanner project will not cause or significantly contribute to a violation of any ambient air quality standard.

### **References:**

1. *State of Idaho Guideline for Performing Air Quality Impact Analyses*. Idaho Department of Environmental Quality. September 2013. State of Idaho DEQ Air Doc. ID AQ-011. Available at <http://www.deq.idaho.gov/media/1029/modeling-guideline.pdf>.
2. Air Quality Environmental Science and Technology Consortium (NW AIRQUEST). *Lookup 2009-2011 Design Values of Criteria Pollutants*. Available at: <http://lar.wsu.edu/nw-airquest/lookup.html>.

## APPENDIX C – FACILITY DRAFT COMMENTS

**The following comments were received from the facility on January 2, 2017:**

**Facility Comment:**

To: Tom Burnham  
1410 N. Hilton Street  
Boise, Idaho 83706  
File: 230701095

From: Eric Clark  
727 East Riverpark Lane Suite 150  
Boise, Idaho 83706  
Date: December 23, 2016

---

**Reference: Response to Draff Permit – EM Tanner & Sons**

Mr Burnham:

Thank you for the opportunity to review the EM Tanner Draft Permit to Construct. The majority of its contents are amenable to Tanner, but there one portion of the Paint Room description that we request to modify.

**Permit Condition 2.1 currently states:**

The paint comes in five gallons pails and is sprayed directly from the container.

**Requested changes:**

The paint arrives in five gallon buckets.

**Rationale:**

Most of the time the paints are sprayed from the buckets it arrives in, but periodically the paint is transferred first to other spray containers.

Thank you.



Eric Clark  
Project Engineer  
Phone: (208) 853-0883 x 102  
Fax: (208) 853-0884  
eric.clark@stantec.com

cc. aaront@milestone-equipment.com

**DEQ Response:** The requested language was changed in the permit in response to the applicant's rationale.

**APPENDIX D – PROCESSING FEE**

## PTC Fee Calculation

**Instructions:**

Fill in the following information and answer the following questions with a Y or N. Enter the emissions increases and decreases for each pollutant in the table.

**Company:** E. M. Tanner & Sons  
**Address:** 221 Airport Road  
**City:** Blackfoot  
**State:** ID  
**Zip Code:** 83221  
**Facility Contact:** Aaron Turner  
**Title:** Operations Manager  
**AIRS No.:** 011-00036

N  Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N

Y  Did this permit require engineering analysis? Y/N

N  Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

<b>Emissions Inventory</b>			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO <sub>x</sub>	0.0	0	0.0
SO <sub>2</sub>	0.0	0	0.0
CO	0.0	0	0.0
PM10	0.0	0	0.0
VOC	0.4	0	0.4
TAPS/HAPS	0.0	0	0.0
<b>Total:</b>	<b>0.0</b>	<b>0</b>	<b>0.4</b>
Fee Due	<b>\$ 1,000.00</b>		

Comments: